CLAIMS

What is claimed is:

1. A method for routing data packets in a wireless network at a node *i*, comprising:

selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p*,

where D_{yp}^{i} is the distance value of the route from node *i* to node y through neighbor p *and* D_{yx}^{i} is the distance value of the route from node *i* to node *y* through neighbor *x*.

2. A method as recited in claim 1,

wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

3. A method as recited in claim 1, further comprising:

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

4. A method as recited in claim 1, further comprising:

sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

5. A method for routing data packets in a wireless network at a node *i*, comprising:

(a) selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p*,

where D_{yp}^{i} is the distance value of the route from node *i* to node y through neighbor p *and* D_{yx}^{i} is the distance value of the route from node *i* to node *y* through neighbor *x*;

(b) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(c) wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

6. A method as recited in claim 5, further comprising

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

7. A method as recited in claim 5, further comprising:

sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

8. A method for routing data packets in a wireless network at a node *i*, comprising:

(a) selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p*,

where D_{yp}^{i} is the distance value of the route from node *i* to node y through neighbor p *and* D_{yx}^{i} is the distance value of the route from node *i* to node *y* through neighbor *x*; and

(b) sending updates to a routing table if

(i) a node discovers a new destination with a finite and valid path to the destination, or

(ii) a node loses the last path to a destination, or

(iii) a node suffers a distance increase to a destination.

9. A method as recited in claim 8,

wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

10. A method as recited in claim 8, further comprising:

sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

11. A method for routing data packets in a wireless network at a node *i*, comprising:

(a) selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p*,

where D_{yp}^{i} is the distance value of the route from node *i* to node y through neighbor p *and* D_{yx}^{i} is the distance value of the route from node *i* to node *y* through neighbor *x*;

(b) sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

(c) sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

12. A method as recited in claim 11,

wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

13. A method as recited in claim 11, further comprising

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

14. A method for routing data packets in a wireless network at a node *i*, comprising:

(a) selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p*,

where D_{yp}^{i} is the distance value of the route from node *i* to node y through neighbor p *and* D_{yx}^{i} is the distance value of the route from node *i* to node *y* through neighbor *x*; and

(b) sending updates to a routing table if

(i) a node discovers a new destination with a finite and valid path to the destination, or

(ii) a node loses the last path to a destination, or

(iii) a node suffers a distance increase to a destination;

(c) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(d) wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

15. A method as recited in claim 14, further comprising:

sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

16. A method for routing data packets in a wireless network at a node *i*, comprising:

(a) selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p*,

where D_{yp}^{i} is the distance value of the route from node *i* to node y through neighbor p *and* D_{yx}^{i} is the distance value of the route from node *i* to node *y* through neighbor *x*;

(b) sending a unicast routing table update from a node to a neighbor that

sends it a data packet, if the neighbor is upstream from it towards the destination; and

(c) sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table;

(d) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(e) wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

17. A method as recited in claim 16, further comprising

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

18. A method for routing data packets in a wireless network at a node *i*, comprising:

(a) selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D^i_{yp} < D^i_{yx}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p,*

where D^i_{yp} is the distance value of the route from node *i* to node y through neighbor p *and* D^i_{yx} is the distance value of the route from node *i* to node *y* through neighbor *x*;

(b) sending updates to a routing table if

(i) a node discovers a new destination with a finite and valid path to the destination, or

(ii) a node loses the last path to a destination, or

(iii) a node suffers a distance increase to a destination;

(c) sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

(d) sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

19. A method as recited in claim 18,

wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

20. A method for routing data packets in a wireless network at a node *i*, comprising:

(a) selecting a neighbor *p* as the next hop in a route from node *i* to destination *j* if

(i) the path from neighbor *p* to destination *j* does not include node *i* and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor *x* and for all nodes *y* that are in the path from destination *j* to neighbor *p*,

where D_{yp}^{i} is the distance value of the route from node *i* to node y through neighbor *p and* D_{yx}^{i} is the distance value of the route from node *i* to node *y* through neighbor *x*;

(b) sending updates to a routing table if

(i) a node discovers a new destination with a finite and valid path to the destination, or

(ii) a node loses the last path to a destination, or

(iii) a node suffers a distance increase to a destination.

(c) sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

(d) sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is

different from the path implied by the node's routing table;

(e) wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(f) wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.